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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/894,121      | 06/29/2001  | Tsuyoshi Kitahara    | Q64938              | 6181             |

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06/16/2003

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EXAMINER

VO, PETER DUNG BA

ART UNIT

PAPER NUMBER

3729

DATE MAILED: 06/16/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/894,121

Applicant(s)

KITAHARA, TSUYOSHI

Examiner

Alan M Boswell

Art Unit

3729

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 June 2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 14-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 14-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All   b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 09/394,706.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)                      4) ☒ Interview Summary (PTO-413) Paper No(s). 5.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)                      5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.                      6) ☐ Other:

**DETAILED ACTION**

***Claim Objections***

1. Claims 14 and 15 are objected to because of the following informalities: In claim 14, lines 7 and 8 the limitation "though" is misspelled. Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Regarding claims 14 and 15, the phrase "strip-like" renders the claim(s) indefinite because the term "strip-like" appears to be equivalent to "strip or the like", thereby rendering the scope of the claim(s) unascertainable. See MPEP § 2173.05(d).
3. Regarding claims 14 and 15, the understood recitation "where is nearer to a central portion thereof" it unclear as to what the central portion is relative too.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 14 and 15 rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant admitted prior art (AAPA) in view of US Patent No. 5644107 to Kubota.

AAPA teaches a piezoelectric vibrator unit with alternately stacked piezoelectric ceramic material but fails to teach the manufacturing process.

Kubota teaches manufacturing process including: preparing a green sheet 16 and 17 in which through holes 19 are opened in the vicinity of at least one end portion thereof which is to be a vibrating region of the piezoelectric unit 10 (see Fig. 2);

forming a conductive material layer 12 on the green sheet while filling the through holes that a strip like non conductive region 11 is formed in an area the through holes 19 and is to be coincident with a distal end of an internal common electrode 23 and 24 (see Fig. 3);

repeating the steps a and b to stack required number layers until the through holes 19 to electrically connected with a segment electrode are filled 18 (see col. 6, lines 39-42); baking the above to form a single piezoelectric material diaphragm (see cols. 6 and 8, lines 43-44 and 1-5); and

forming slits 21 and 22 on the material diaphragm so as to elongate to an area where at least the conductive layers 12 can be separated from each other constitute piezoelectric vibrators (see col. 7, lines 66-67).

Regarding claims 16 and 17, Kubota teaches the through holes 19 are opened so as to coincide with an arrangement pitch of the piezoelectric vibrators (see Fig. 3).

Regarding claims 18 and 19, Kubota teaches the slits 21 and 22 are formed so as to coincide with arrangement pitch of the through holes formed in one end portion which is to be a free end of the piezoelectric vibrator (see Fig. 3).

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The advantage of the above manufacturing process is to make packing and handling easier as compared with multi-electronic components, which are separated from each other (see col. 4, lines 20-25).

It would have been obvious to one of ordinary skill in the art at the time the invention to improve the AAPA method by including the manufacturing process of Kubota to make packing and handling easier as compared with multi-electronic components, which are separated from each other.

### ***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patent is cited to show the state of the art in the method of manufacturing a piezoelectric vibrator unit.

US Patent No. 5607535 to Tsukada.

Telephone inquiries regarding the status of applications or other general questions, by persons entitled to the information, should be directed to the group clerical personnel. In as much as the official records and applications are located in the clerical section of the examining groups, the clerical personnel can readily provide status information. M.P.E.P. 203.08. The Group clerical receptionist number is (703) 308-1148.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alan M Boswell whose telephone number is (703) 305-0308. The examiner can normally be reached on M-F (7:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter D. Vo can be reached on (703) 308-1789. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3579 for regular communications and (703) 305-3579 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-2572.

Other helpful telephone numbers are listed for applicant's benefit.

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ab  
April 23, 2003

  
A. DEXTER TUGBANG  
PATENT EXAMINER